

CLAIMS

What is claimed is:

1. A composition comprising an aqueous dispersion of an
5 electrically conductive organic polymer and a plurality of nanoparticles.
2. A composition according to claim 1, wherein said electrically
conductive organic polymer is selected from polyaniline with poly(2-
acrylamido-2-methyl-1-propanesulfonic acid) as the counterion
(PAni/PAAMPSA), polythiophene and poly(ethylenedioxythiophene) with
10 poly(styrenesulfonic acid) as the counter ion (PEDT/PSS).
3. A composition according to claim 1, wherein said
nanoparticles comprise nanoparticles selected from inorganic
nanoparticles, organic nanoparticles and mixtures thereof.
4. A composition according to claim 3, wherein said inorganic
15 nanoparticles are selected from silica, alumina, and electrically conductive
metal oxides and mixtures thereof.
5. A composition according to claim 3, wherein said organic
nanoparticles are selected from polyacrylates, carbon nanotubes, and
perfluoroethylene sulfonates and mixtures thereof.
- 20 6. A composition according to claim 1, wherein said
nanoparticles have a particle size less than about 500 nm.
7. A composition according to claim 1, wherein said
nanoparticles have a particle size less than about 250 nm.
8. A composition according to claim 1, wherein said
25 nanoparticles have a particle size less than about 50 nm.
9. A composition according to claim 4, wherein the weight ratio
of silica:electrically conductive polymer is about 4:1.
10. A composition according to claim 4, wherein the weight ratio
of electrically conductive oxides:electrically conductive polymer is about
30 1.5:1.
11. A high resistance buffer layer comprising an electrically
conductive polymer and a plurality of nanoparticles dispersed therein.
12. A high resistance buffer layer according to claim 11, wherein
said electrically conductive polymer is selected from PAni/PAAMPSA and
35 PEDT/PSS.
13. A high resistance buffer layer according to claim 11, wherein
said nanoparticles comprise nanoparticles selected from inorganic
nanoparticles and organic nanoparticles and mixtures thereof.

14. A high resistance buffer layer according to claim 11, wherein said inorganic nanoparticles are selected from silica, alumina, or electrically conductive metal oxides and mixtures.

5 15. A high resistance buffer layer according to claim 11, wherein said organic nanoparticles are selected from polyacrylates, carbon nanotubes, and perfluoroethylene sulfonates and mixtures thereof.

16. A high resistance buffer layer according to claim 11, wherein said layer has a conductivity of less than about 1×10^{-3} S/cm.

10 17. A high resistance buffer layer according to claim 11, wherein said layer has a conductivity of less than about 1×10^{-5} S/cm.

18. An organic device comprising a high resistance buffer layer comprising an electrically conductive polymer and a plurality of nanoparticles dispersed therein.

15 19. A device according to claim 18, wherein said electrically conductive polymer is selected from PANi/PAAMPSA or PEDT/PSS.

20. A device according to claim 18, wherein said nanoparticles comprise nanoparticles selected from inorganic nanoparticles and organic nanoparticles and mixtures thereof.

20 21. A device according to claim 18, wherein said inorganic nanoparticles are selected from silica, alumina, or electrically conductive metal oxides and mixtures thereof.

25 22. A device according to claim 18, wherein said organic nanoparticles are selected from polyacrylates, carbon nanotubes, and perfluoroethylene sulfonates and mixtures thereof.